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LIFE SUPPORT EQUIPMENT
FOR THE
U-2R

OSA PROGRAM

- I. Basic Need
- II. Specific Requirements, OSA
- III. Funding Requirements, OSA

Date (revised)

18 August 1967

USAF review(s) completed.

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I. BASIC NEED

A. Present U-2 Life Support System is Obsolete

- (1) Original pressure suit development was in late 1940's - early 1950's.
- (2) Maximum duration tolerated in U-2 flight with end of flight at maximum limit of pilot's fatigue tolerance -- pilot near collapse -

Ferry Flight: 12.75 hrs.

Operational Flight: 12.5 hrs.

Operational Flight: 4 hrs. with pressure suit inflated.

- (3) Replacement parts for repair, overhaul, and maintenance nearly non-existent.

No depot levels.

USAF surpluses depleted.

Contractors unable to tool-up economically -- costs would be prohibitive for small quantities required.

Especially critical for helmets.

B. U-2R Flight Envelope -- demands that pilots' capabilities be matched to the aircraft's capabilities, i.e.:

- (1) 13.6 hours maximum altitude cruise, 4,000 N.M.
- (2) 17.1 hours maximum range cruise, 7,000 N.M.
- (3) Present U-2 pressure suit will not allow pilot to match this performance.
- (4) Logical choice is full pressure suit, based on NASA's Project Mercury and Gemini experience -- Days or weeks spent in similar equipment.

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C. "Off-the-Shelf" and "Standard" Equipment

- (1) Off-the-shelf items do not exist in sufficient numbers to fit all pilots required.
- (2) Standard items will not satisfy requirements imposed by U-2R characteristics without modification.

D. S-1010 Pilot's Protective Assembly for U-2R Pilots

- (1) Assembly is a modification of a standard item, the SR-71 S-901 J Pilot's Protective Assembly.
- (2) Modifications of SR-71 Assembly are:
 - (a) Increased pilot comfort to insure adequate performance and minimize fatigue over durations involved.
 - (b) Elimination of features of assembly required only for Mach 3.2 flight.
 - (c) Basic SR-71 assembly hardware utilized -- no new development or AGE development required.

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II. SPECIFIC REQUIREMENTS, OSA

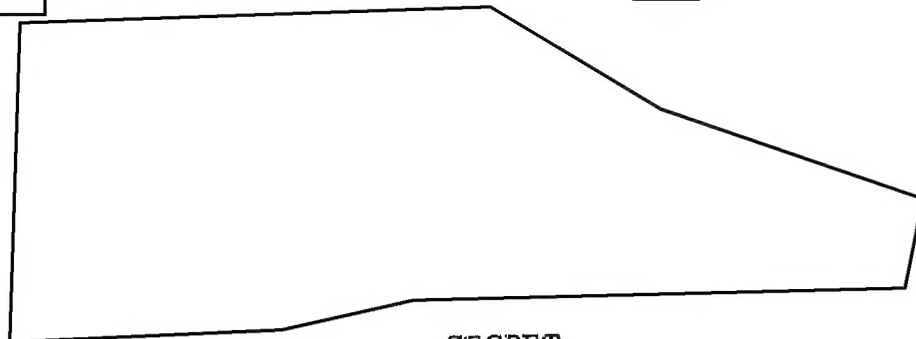
A. Flight Test Program: 28 Aug 1967 - 1 March 1968

- (1) Pilot's Protective Assemblies (PPA's) 25X1
ADP test pilots. Interim use of modified OXCART suits
at start of program. FY-67 funding for S-1010 suits 25X1
for ADP pilots.
- (2) One S-1010 PPA for Project test pilot (obtained from
FY-68 funding)
- (3) AGE, test equipment, tools, suit spares, AGE spares to
support "interim" PPA's and S-1010 PPA's at Detachment G.
Most items procured, some "borrowed".
- (4) Technical training for life support personnel in full
pressure suits, related AGE and test equipment.
- (5) Tech data, drawings, specifications and manuals in
support of new equipment.
- (6) One additional Firewel Tech Rep and one David Clark
Tech Rep at Detachment G.

B. U-2R Pilot Qualification Training: 1 Feb - 1 June 68

- (1) 1.7 S-1010 PPA's per ATTACHED Pilot.

attached pilots for a total of PPA's required:



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- (2) Additional spares, AGE and tech training at Detachment G.
Also, installation of AGE and test equipment in new
life support facility at Detachment G.

C. Initial Operational Capability: 1 June 1968

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- (1) Requires 2 complete PPA's for each pilots (Project)
with 1 PPA per remaining pilots (Staff).
- (2) Requires suit spares to support all PPA's and two FAK's.
- (3) Requires AGE, test equipment, and appropriate spares
for provisioning of Detachments G and two FAK's.
- (4) Requires fully trained life support personnel, including
tech reps, at Detachment G.

D. FY-68 Firewel

- (1) AGE, test equipment, and appropriate spare parts for
two FAK's will be required.
- (2) Spare parts for AGE and test equipment purchased in
FY-67 for Detachment G will be required.
- (3) Data, drawings, manuals, tech training and AGE in-
stallation (Det G) will be required.

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* Items 1-6 represent initial costs for life support system incurred in FY-67, 68 only.

Items 7-10 are continuing costs to support equipment procured in FY-67, 68. Line items are broken down into subitems in parentheses.

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Next 1 Page(s) In Document Exempt

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